Design and Construction Notes

1. Unless otherwise specified, the roof shall be designed to carry a combined snow load wind load, plus dead load of 30 psf on the entire roof surface. It shall also be designed to withstand a uniform uplift of 16.64 psf under the entire roof. In addition, the roof shall carry additional drifting and or sliding snow loads from adjacent buildings, if applicable.

2. When trusses are used, shop drawings shall be provided to the Design Engineer prior the ordering the trusses and "PE" sealed shop drawings shall be supplied by the Truss Plate Institute certified manufacture at the time of truss delivery. (Truss and stringer configuration shown in the drawings is for illustration purposes only.)

3. All nails used for structural connections shall be ring, spiral, or screw shank hardened nails full head size 16d or larger. Structural connections shall include girder/header to post connections, truss to post connections, truss to girder/header connections, knee braces, wye braces, etc.

4. All nails used with pressure treated wood shall be ring, spiral, or screw shank hardened galvanized nails.

5. Nails for general framing can be common, smooth nails. General framing includes purlins, diagonal braces, lateral braces, etc.

6. Bolts, screws, or metal plate connectors may be used instead of nails. Such substitutions shall provide a connection of equal or greater strength and durability, according to the National Forest Products Association's (NFPA) National Design Specification.

7. All wood in contact with the ground or manure shall be pressure treated as per American Wood Preserver's Association Standard (posts shall be treated to 0.6 cca and all other wood shall be treated to 0.4 cca.)

8. Soild or laminated posts shall be Southern Pine No. 2–SR Grade or Douglas Fir–Larch No. 1 Grade (Surface green, used at any condition). All other lumber shall be Southern Yellow Pine or Douglas Fir–Larch No. 2 Grade (Surface dry, used at 19% maximum moisture content). Substitution of other species and grades with equal or greater bending strength (as per NFPA Design Vaues for wood Construction) may be made if approved by the Engineer.

9. If post embedment concrete is taken to the surface, isolate from floor concrete with tar paper and camber for positive drainage. Earth backfill to be placed in compacted 8" lifts.

10. If rear wall is to be below original grade, continue side drain along back wall, but do not have drainfill higher than floor slab.

11. Put 1/2" thick expansion joint material between 6"x 8" posts and floor concrete.

12. Battens, nailers, posts, and tongue and groove siding shall be treated as per American Wood – Preserver's Association standard.

13. All concrete work shall be as per details. Minimum strength shall be 4,000 psi. Reinforcement and placement shall be as per NRCS construction specification 313.

14. If expansion joints in the floor slab are more than 30' apart in either direction or liquid–tight conditions are required, a site specific joint design and details are needed.

15. End trusses shall be faced with 3/4" structural plywood, corrugated 29 gage galvanized steel roofing, an equivalent or bettter. In addition, all other exposed non–treated lumber shall be protected or covered.

16. Knee and Wye bracing are required for the posts and girders as shown. Knee and Wye bracing are required at all posts which extend to the trusses. Wye bracing shall be installed AFTER all roof framing is complete.

17. Permanent continuous lateral bracing is required. Continuous lateral bracing must be installed with staggered side by side overlap connections (no butt to butt connections). The ends of the braces must extend fully past the truss and allow a 2–nail connection without using toenails.

18. Permanent diagonal bracing is required on the truss system. Permanent diagonal bracing is required at each end of the building and at intervals not to exceed 20 feet. All bracing shall be installed as per Truss Plate Institure HIB–98.

19. Roof fasteners shall be a combination of zinc coated steel and neopreme washer. Double stitch the seams of the roof edges. Typical aluminum roof shall have fasteners on a 9" spacing on the purlins 24" on center. Aluminum roofing shall have nominal thickness of 0.018 inches and coated steel of a 29 gauge minimum or better.

20. Designers; the width of the 18" spaced purlins is equal to the width of the snow drift. This width is equal to: 4x [1.08 (cubed root of adjacent building width) – 1.5]. This design accomodates the snow drift from an adjacent building 40' wide.

21. Ventilation shall be provided at the ridge or through the openings in the end trusses. Ventilation shall be provided to offer at least 2" of opening per 10' of building width.

22. Roof gutters with downspouts, or dripline drains shall be installed with a non–erosive positive outlet, and shall meet the requirements of NRCS Conservation Practice Standard 558.

23. All final cut/fill surfaces shall be graded to direct surface water away from the structure.

24. The posts on the backwall do not need to extend to the trusses.

25. Review all other details and specifications. This design is for open sides only. Major building structural changes are necessary if the building sides are covered.

Date 3/04
Designed RGD & MWR
Drawn RGD 3/04
Checked ADW 5/04
Approved by

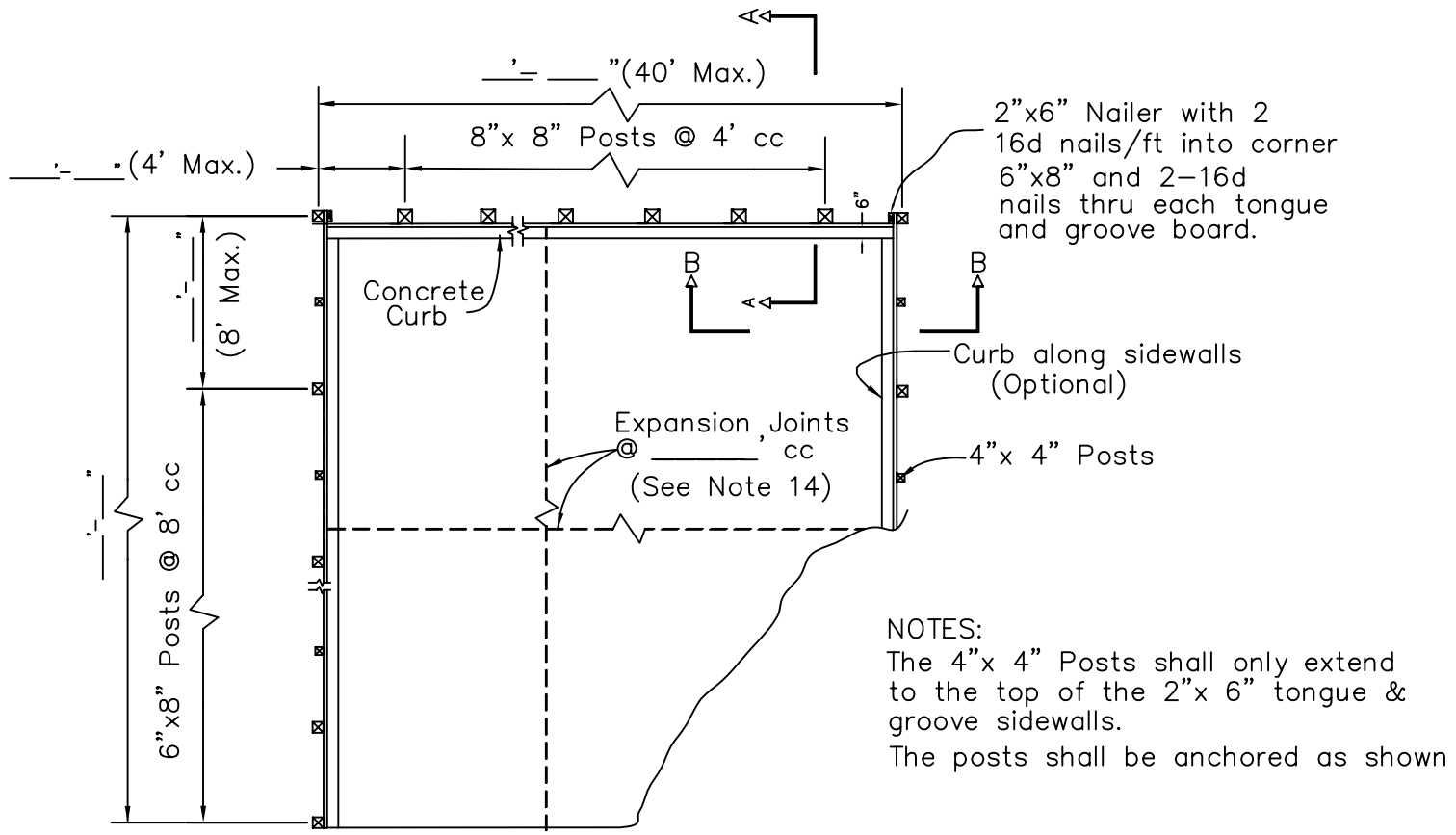
DESIGN AND CONSTRUCTION NOTES
MONO–SLOPED ROOFED STRUCTURE

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No.
PA–072A.dwg

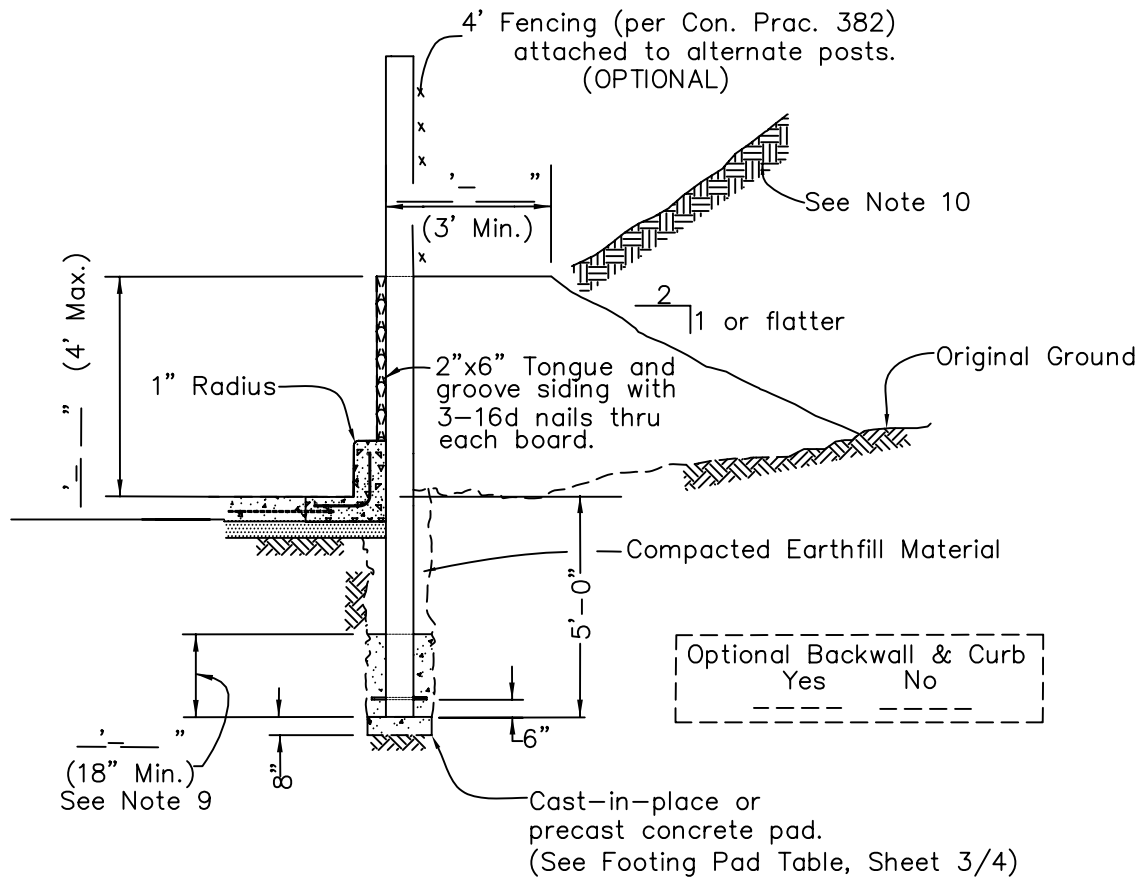
Drawing No.
PA–072A

Sheet 1 of 4



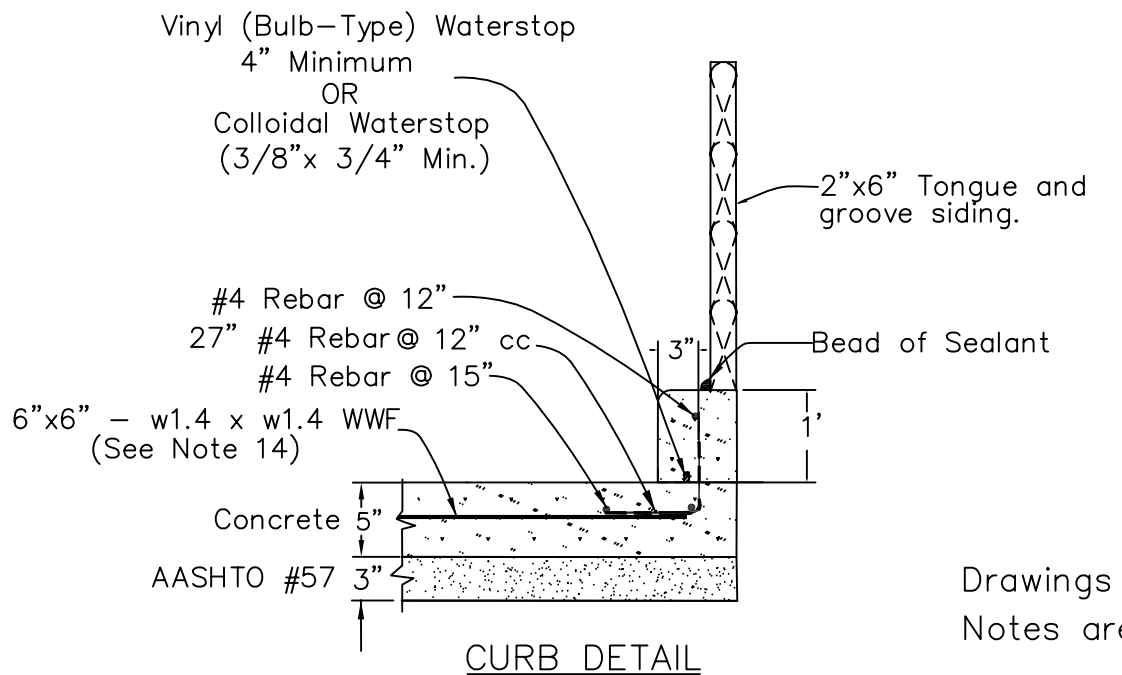
NOTES:
The 4"x 4" Posts shall only extend to the top of the 2"x 6" tongue & groove sidewalls.
The posts shall be anchored as shown

PLAN VIEW



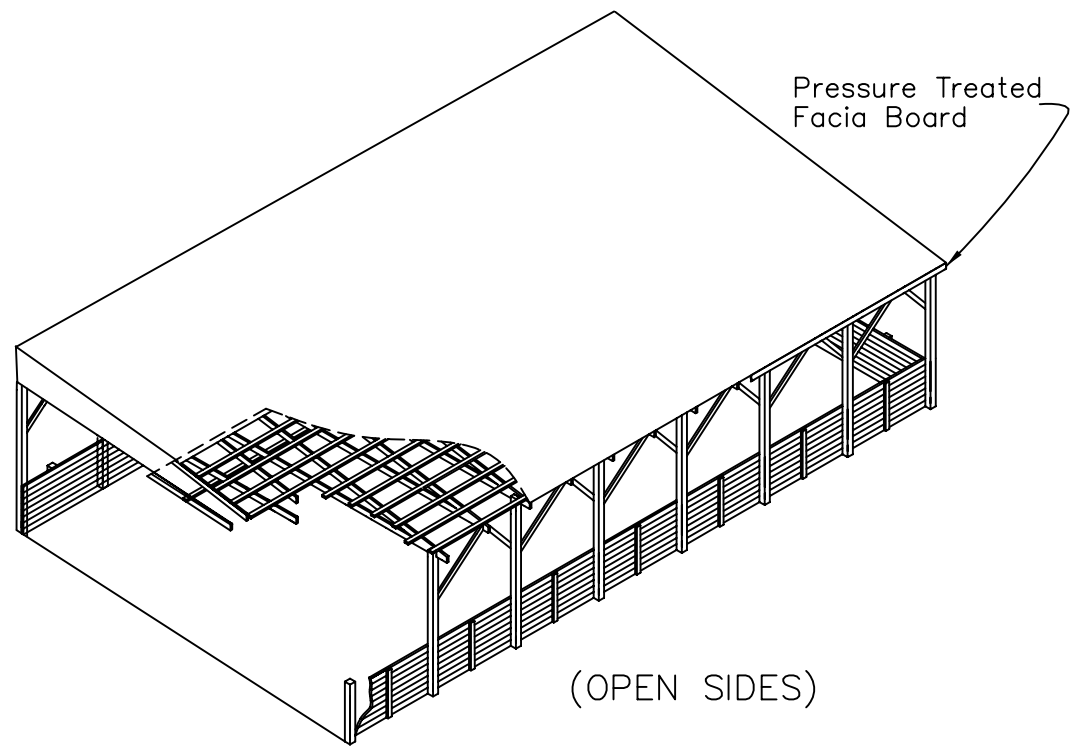
SECTION A–A

NOTES:
Section B–B is on Sheet 3/4



CURB DETAIL

Drawings are Not to Scale.
Notes are on Sheet 1/4.



(OPEN SIDES)

Date 3/04 3/04 5/04
Designed RGD & MWR
Drawn RGD
Checked ADW
Approved by

COUNTY, PENNSYLVANIA

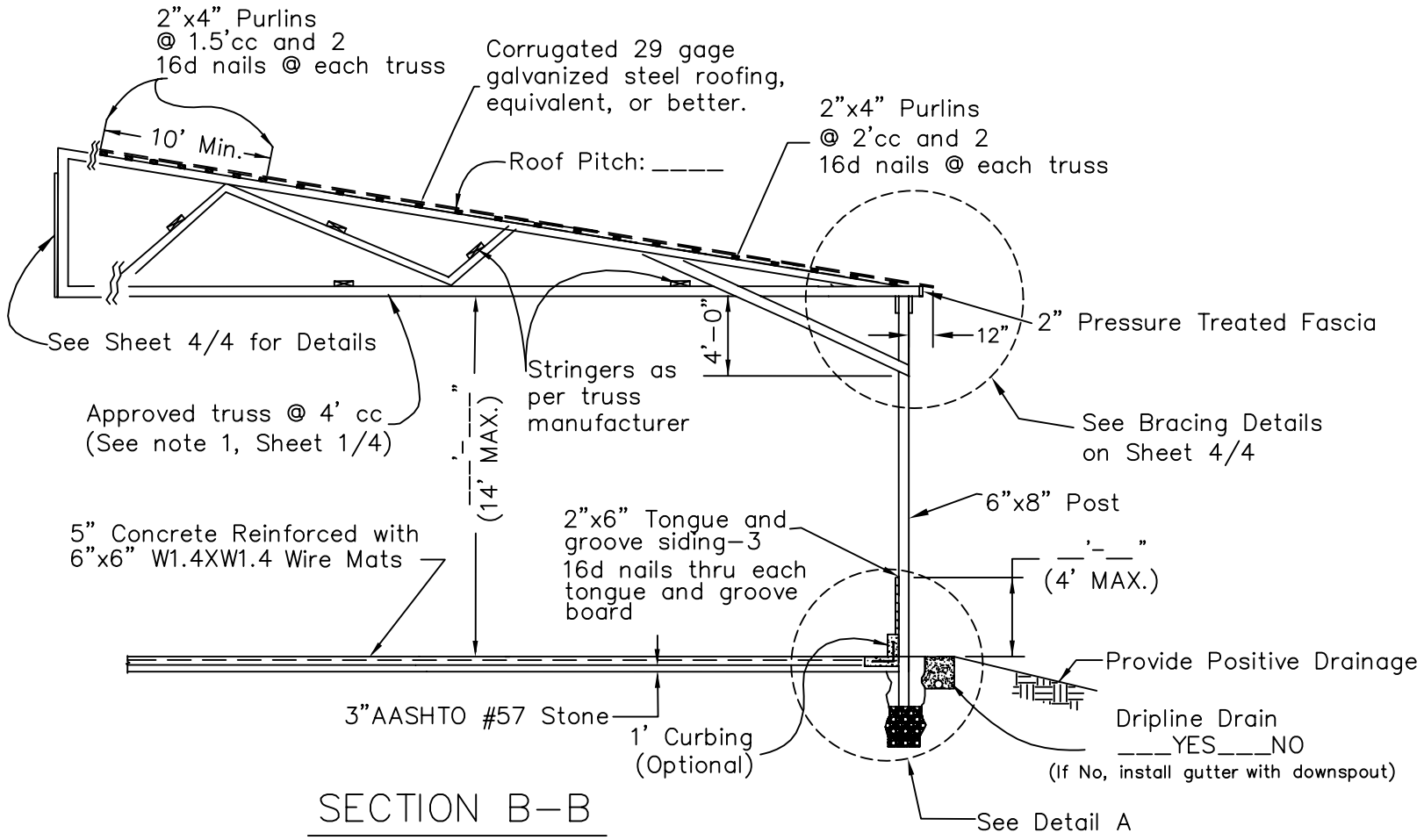
PLANVIEW MONO–SLOPED ROOFED STRUCTURE

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

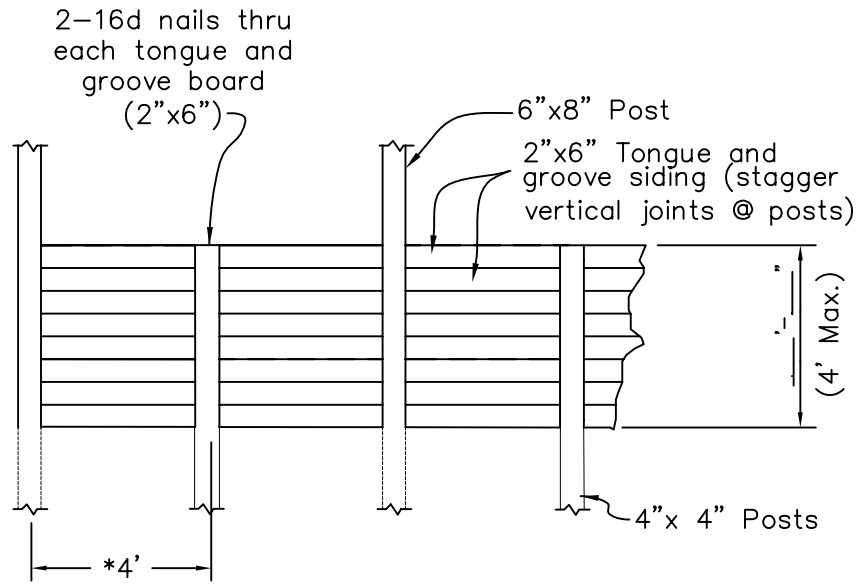
File No. PA-072B.dwg

Drawing No. PA-072B

Sheet 2 of 4

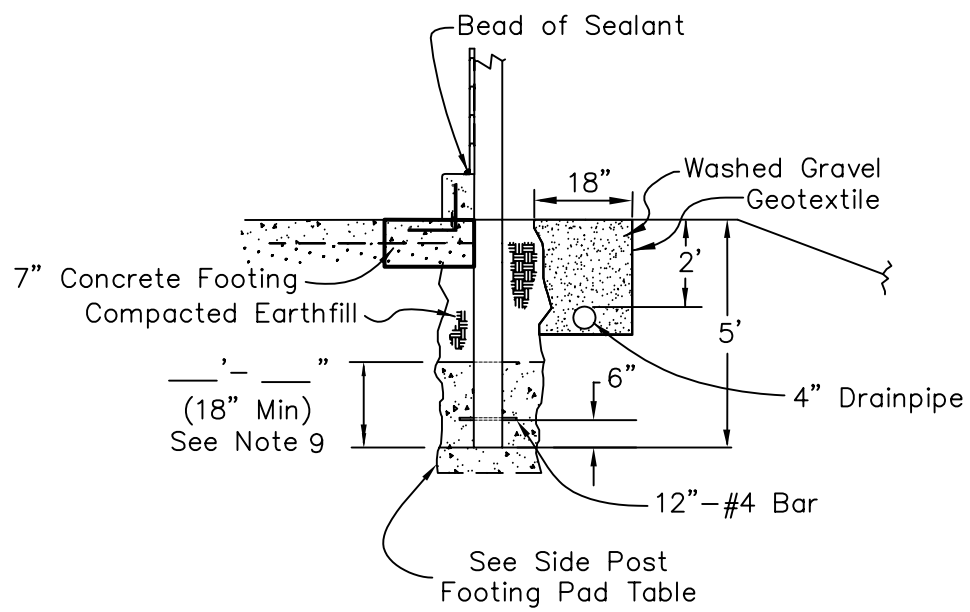


SECTION B-B



* Or half the distance between posts.
(Batten is not needed if posts are less than 4' cc.)

SIDE VIEW



NOTE:
The waterstop shall be Vinyl (Bulb-Type) 4" minimum
OR
Colloidal waterstop (3/8" x 3/4" Min.)

DETAIL A

SIDE POSTS FOOTING PAD TABLE 1/		
FOUNDATION MATERIAL 2/	SIZE	THICKNESS
Durable Rock, GW, GP, SW, SP	18" Dia.	8"
GM, GC, SM, SC	20" Dia.	8"
CL, MH, ML, CH	24" Dia.	8"

1/ Unless local site conditions or codes require greater dimensions

2/ USCS

LIMITING DESIGN LOADS

Backwall earth fill: γ Max.=110pcf, ϕ =30°

Manure: 8' Max. Height within 4' of side walls, 25pcf Equivalent Fluid Pressure.

No siding above tongue and groove.

Drawings are Not to Scale.
Notes are on Sheet 1/4

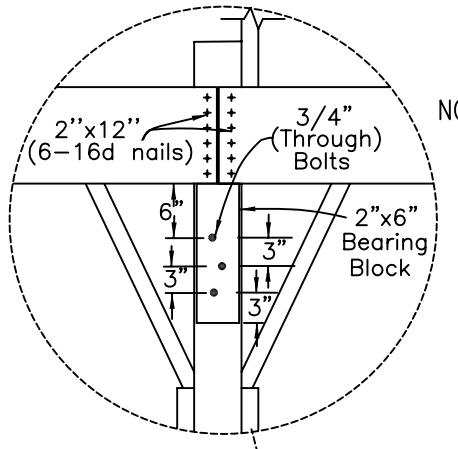
Date 3/04 | 3/04 | 5/04
Designed RGD & MWR | Drawn RGD | Checked ADW | Approved by

COUNTY, PENNSYLVANIA
CROSS SECTIONS MONO-SLOPED ROOFED STRUCTURE

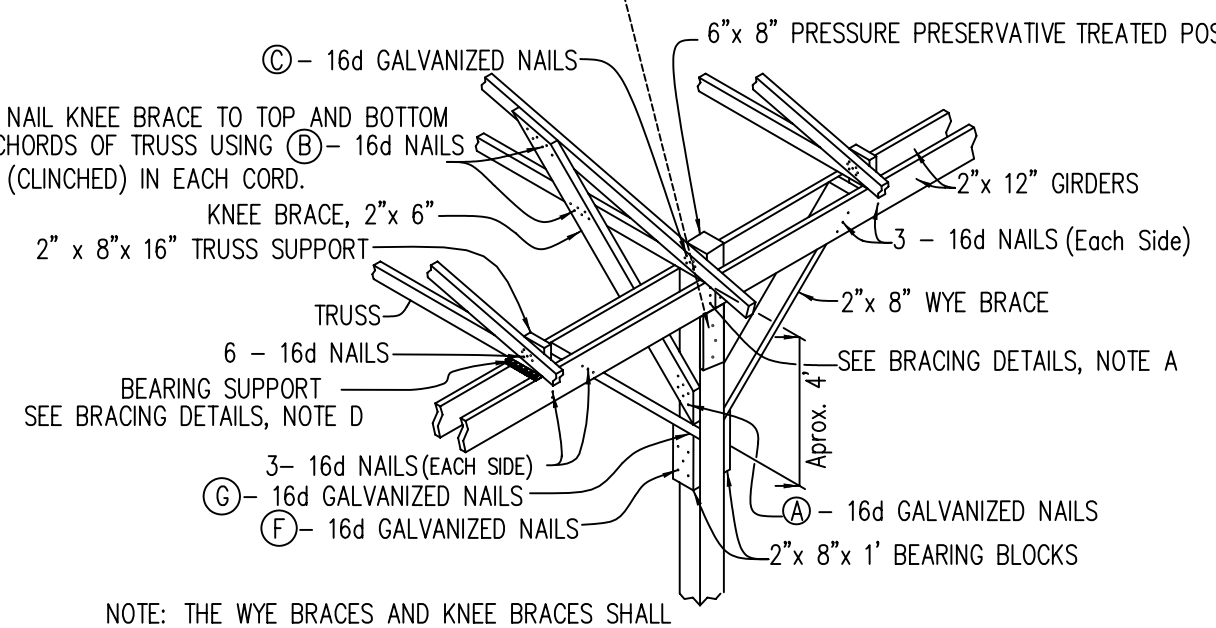
NRCS Natural Resources Conservation Service United States Department of Agriculture

File No. PA-072C.dwg
Drawing No. PA-072C
Sheet 3 of 4

NAILING DETAIL AT GIRDER & POST CONNECTION

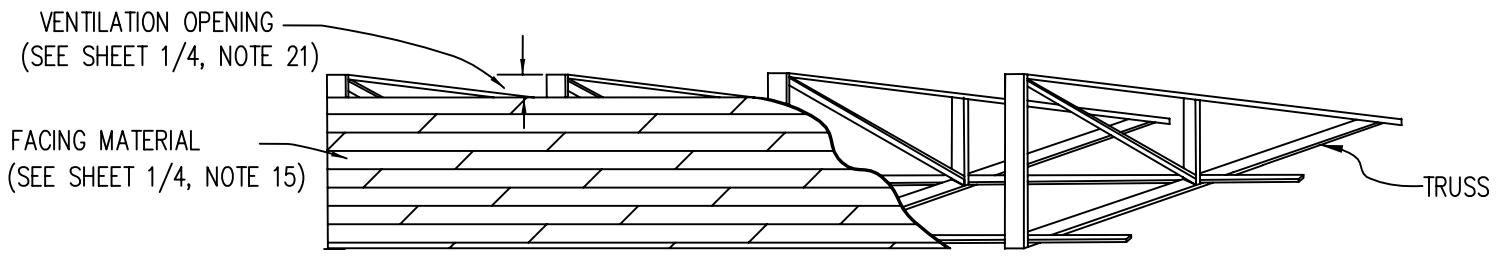


NOTE: OFFSET BOLTS 1/2" FROM CENTERLINE

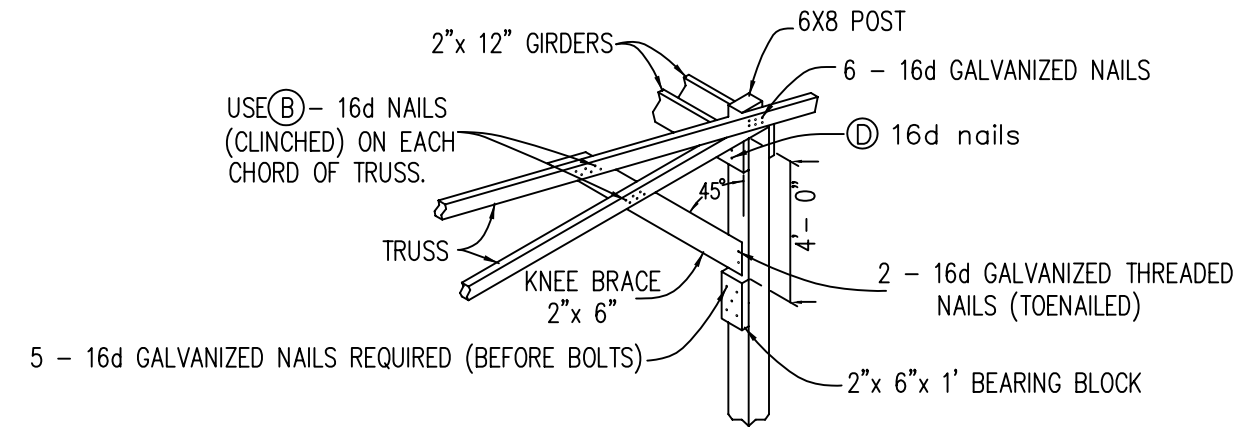


NOTE: THE WYE BRACES AND KNEE BRACES SHALL BE INSTALLED AT A 45° ANGLE FROM THE 6"x 8" TREATED POSTS.
INSTALL WYE BRACES AFTER THE TRUSSES ARE SET.

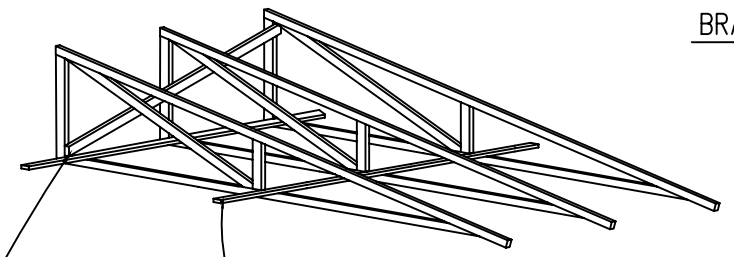
BRACING DETAIL



HIGH–CLOSED END OF TRUSS



BRACING AT END OF BUILDING



2" x 4" BOTTOM CORD BRACING
(2–16d NAILS @ EACH BRACE TRUSS CONNECTION)
LAP SPACING BETWEEN BRACES, SHALL BE AS PER TRUSS MFG. RECOMMENDATIONS.

2" x 4" DIAGONAL BRACING AT ENDS OF BUILDING AND AT 25' (Maximum) INTERVALS.
(2–16d NAILS @ EACH BRACE TRUSS CONNECTION)

CORD AND DIAGONAL BRACING

Drawings are Not to Scale.
Notes Are on Sheet 1/4

BRACING DETAILS

A. On ends of 2"x12" Girders, use Ⓓ – 16d nails. Where Girders cross treated posts, use Ⓔ – 16d nails.
B. Bracing configuration shall be provided by the Truss manfacturer.
The illustration above shows the recommended addtional bracing.
C. Do NOT notch posts to accomodate trusses.
D. Provide a truss bearing support between girders at each truss location, as required by the truss MFG. drawings.

NUMBER OF NAILS REQUIRED	
	BUILDING WIDTH
JOINT	≤ 40'
A	6
B	4
C	6
D*	3
E*	6
F	6
G	3

* NOTE A: ON ENDS OF 2"x 12" GIRDERS, USE Ⓓ – 16d GALVANIZED NAILS. WHERE GIRDERS CROSS POSTS, USE Ⓔ – 16d GALVANIZED NAILS.

Date 3/04 | 3/04 | 5/04 |
Designed RGD & MMR | Drawn RGD | Checked ADW | Approved by

COUNTY, PENNSYLVANIA

BRACING DETAILS MONO–SLOPED ROOFED STRUCTURE

NRCS Natural Resources Conservation Service United States Department of Agriculture

File No. PA-072D.dwg

Drawing No. PA-072D

Sheet 4 of 4